

KSC LOD NO. 18A  
Dated: November 1, 1972  
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(Replaces LOD NO. 18 dated  
June 27, 1968)

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KSC LAUNCH OPERATIONS DIRECTIVE NO. 18A

To: Distribution

From: H. J. Kapryan  
Director of Launch Operations

Subject: APOLLO/SKYLAB PROGRAM EQUIPMENT PARTS REMOVAL CONTROL

1.1 PURPOSE

The practice of removing components from one end item for installation on another to meet priority requirements is commonly called "cannibalization". Because of the hurried circumstances under which this practice often takes place, it carries an inherent danger of lack of control over the removed part and item.

This directive establishes policy guidance and identifies the responsibilities for control of parts removal.

For the purpose of this directive Controlled Parts Removal is defined as: "The authorize removal of a specific part of component from one end item for installation on another end item to meet priority requirements, including the obligation of recording the removal; replacing the specific removed part or component, and accomplishing those tests necessary to demonstrate that the removed end item has been restored to its original acceptance status."

NOTE - Parts or equipment borrowing from one system to use in another under any condition is undesirable and should be resorted to only in those cases of extreme urgency when inability to obtain the required part through normal supply channels would adversely affect test schedules or mission requirements.

2.1 AUTHORITY

The authority for this directive is established by KPD 7500.2 entitled "Apollo Program Equipment Cannibalization Control" (which includes Skylab vehicles) and by KPD 7500.3 entitled "KSC Logistics Plan for Apollo-Skylab Programs."

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### 3.1 SCOPE

The provisions of this directive apply to all Apollo-Skylab Program vehicles and ground support equipment including mission support real property equipment for which the Directorate of Launch Operations or its contractors have operation or maintenance responsibility.

### 4.1 RESPONSIBILITIES

The Director, Launch Vehicle Operations and the Director, Spacecraft Operations are responsible for:

- a. Issue or revise contractor instructions which will implement the requirements of this Equipment Parts Removal Control Directive.
- b. Assuring that every effort has been extended to obtain the needed items through established supply channels.
- c. Assuring that proper controls are initiated to prevent uncontrolled item "borrowing".
- d. Performing surveillance evaluation audits of contractors to determine conformance with this directive.
- e. Providing the Director of Launch Operations with reports as may be requested of controlled parts removal actions.
- f. Assuring that action has been taken to replace the borrowed component and that replacement is accomplished.

### 5.1 REQUIREMENTS

- a. Thorough authoritative action will be taken to obtain the needed item through appropriate supply channels prior to proceeding with actions for borrowing items from like systems.
- b. Each recommendation to borrow equipment (component, etc.) will be carefully reviewed prior to approval, to determine the operational impact on the system from which the item is to be removed.

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c. Organizations responsible for executing an Apollo-Skylab equipment controlled parts removal action are responsible for having a documented control procedure to the contractor level.

d. Each affected organization must concur in each action.

e. All of the following conditions must be present before controlled parts removal is approved.

(1) A serviceable replacement part cannot be obtained through the supply channels.

(2) The failed part cannot be locally repaired and tested in time to meet scheduled requirements.

(3) The equipment from which the failed part is being removed is urgently needed for use to meet a schedule milestone.

(4) A completely serviceable part, identical in form, fit and function to the failed part, can be readily removed from another unit or equipment having a lesser priority for meeting schedule milestones.

NOTE - Serviceability of the borrowed part must be certified through satisfactory performance in the system or subsystem from which it is being removed, if feasible, or through bench tests when resources for such certification are available.

f. Final approval to remove a part for replacement in a like system must have the approval of the NASA engineer(s) at the Branch level or higher who is responsible for the operation of the affected system.

For emergency situations which may occur when the stated final approval authority is not available, the highest level NASA engineer on site may temporarily assume the approval authority if such authority is deemed necessary by the directorate. Should this be the case, the established final authority must countersign the parts removal/replacement instructions as soon as practical thereafter.

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g. The Directorates of Launch Vehicle and Spacecraft Operations will establish and maintain a separate central file containing copies of the paperwork with the approval authorization for specific parts removals which occur within their organization.

h. If parts replacement is to occur by borrowing from a like system, the Directorates of Launch Vehicle and Spacecraft Operations will require their contractor to utilize NASA approved management procedures controlling parts replacement.

i. An approved quality assurance form (KSC Form 1-51 or equivalent support or operations and maintenance contractors forms as approved by existing Technical Instructions), must be initiated to identify the assembly from which a part has been removed as discrepant. The disposition instructions (remove and/or replace) must ensure that the assembly is returned to its proper physical and functional configuration.

j. Procedures will be developed to ensure complete visibility of all actions necessary for assuring the replacement of removed components. These procedures will be developed and documented by the responsible NASA-KSC and contractor quality assurance organization(s) and coordinated with the Launch Vehicle Operation and Spacecraft Operations directorates and offices having logistics responsibilities. The procedure(s) developed must specify the necessary documentation to ensure immediate visibility on "Controlled Parts Removal" that can be traced rapidly through the hardware and spares record and status reporting system.

End of Directive.